

REMARKS

By this amendment, applicant has amended the preamble of claims 15 - 23 to change "Device" to "Grinding Machine" to make the preamble of claims 15 - 23 consistent with the preamble of claim 1, from which claims 15 - 23 ultimately depend, and with the remaining dependent claims.

Since the foregoing amendments merely correct a minor informality in connection with claims 15 - 23, entry of this amendment under 37 CFR 1.116 is requested.

Claims 1 - 3 and 5 - 23 stand rejected under 35 USC 103(a) as allegedly being unpatentable over Davidson. Applicant traverses this rejection and requests reconsideration thereof.

The present invention relates to a grinding machine for grinding material by means of grinding bodies. The grinding machine includes a stationary container (2) for receiving grinding material and a rotary disk (3) placed above the container base (2a) for forming a finite gap (5a) with respect to the container wall (2b). In grinding machines of the prior art, a danger exists that the upper and lower parts, particularly the lower part, will be very strongly heated as a result of friction if parts of the grinding material and/or additional added grinding bodies pass during operation into the gap between the container base and the rotating disk. This, on one hand, leads not only to a relatively short grinding machine service life, but, on the other hand, the machine must be frequently switched off during the working of the grinding material to avoid overheating of both the grinding machine and also the grinding and/or polishing material. See, e.g., the fourth paragraph on page 1 of applicant's specification.

According to the present invention, a finite gap is provided between the rotary disk and the container wall, and the rotary disk has a resilient material at least on its underside. According to this construction, if a grinding body or material particle penetrates the gap between the rotary disk and the container wall, the grinding body or material particle is conveyed outwards solely through the rotary movement between the disk and the container base. No wear occurs as a result of the resilience of the disk, or at least its underside, so that the mounting of the disk is not impaired. See, e.g., the third full paragraph on page 2 of applicant's specification.

It is submitted none of the prior art, including the patent to Davidson, even remotely suggests using a resilient material at least on the underside of the rotary disk in order to convey a grinding body or material particle outwards by rotary movement between the disk and the container base. To the contrary, it is submitted one of ordinary skill in the art would have sought to prevent the material from traveling to the underside of the disk, rather than to provide means for conveying the material outwards after it finds its way under the disk. There is absolutely no suggestion in the prior art to solve the problem in the manner taught by applicant.

The patent to Davidson discloses a centrifugal disk finishing apparatus including a finishing chamber or tub 10 formed by an upstanding wall 11 and a concentric rotatable rotor and disk 12 which are supported on a tiltable base 13 which, in turn, is mounted tilting about a horizontal axis on a frame 14 by aligned horizontal shafts 15 extending into flange bearings 16. As admitted by the Examiner, the Davidson patent does not disclose a rotary disk having a resilient material at least on its underside. To the contrary, the Davidson patent discloses the following at column 3, lines 3 - 6:

The disk must be comprised of a stock thickness and/or reinforced through various configurations to prevent any distortion or flexibility.

especially at the outer periphery, to prevent deflection during operation.
(Emphasis added.)

Thus, the Davidson patent clearly teaches away from using a rotary disk having a flexible material at least on its underside.

The Examiner alleges that, inter alia, the specific material of the disk or material of the disk covering "would have been obvious to one having ordinary skill in the art at the time the invention was made, since it is within the general skill of the worker in the art to select material and size on the basis of their suitability for the users preference as an obvious matter of design choice." In the first place, this allegation is traversed since the selection of a resilient material, at least for the underside of the disk, is contrary to the explicit teachings of Davidson. See, column 3, lines 3 - 6 of Davidson. Moreover, deficiencies of cited references can not be remedied by general conclusions by what is basic knowledge or common sense in the art. When an Examiner relies on what is asserted to be general knowledge to negate patentability, that knowledge must be articulated and placed on the record. The Patent and Trademark Office can not rely on conclusory statements when dealing with particular combinations of prior art and specific claims, but must set forth the rational on which it relies. In re Lee, 61 USPQ 2d 1430 (Fed. Cir. 2002). Thus, in order to demonstrate that it would have been obvious to modify the teachings of Davidson, the Examiner must articulate and place on record the knowledge available to one of ordinary skill in the art that would have motivated the modification of the Davidson teachings. It is submitted no such knowledge is of record in the subject application file.

To the contrary, it is submitted the knowledge available to one of ordinary skill in the art would lead that individual to try to prevent the material from traveling to the underside of the disk. The Examiner has not placed on record any knowledge

available to one of ordinary skill in the art that would have motivated one of ordinary skill in the art to allow material to penetrate through a slot into the area underneath the disk and provide a mechanism for conveying the particles outwardly through the rotary movement between the disk and the container base. Specifically, nothing in the prior art would have lead one of ordinary skill in the art to provide a resilient material at least on the underside of the rotary disk as presently claimed.

In the prior art, such as the Davidson grinding machine, the gap between the rotary disk and the wall can be chosen to be ever so small, but still material from the container part enters the area underneath the rotary disk. This material collects there, cakes into a solid and, when the rotary disk turns, rubs against it, on the one hand the expenditure of force for turning the rotary disk is increased, on the other hand, heat is disadvantageously formed.

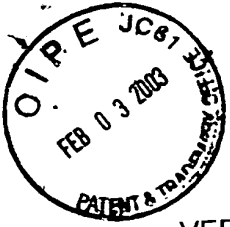
In order to prevent the aforementioned disadvantages and to avoid any abrasive remaining and caking underneath the disk, the present invention calls for the grinding disk to have on its bottom elastic material or to be formed completely from elastic material. This configuration of at least the bottom, when the rotary disk turns, results in vibratory movements of the bottom which prevent the particles which are located there from sticking and allows the particles moreover, to be conveyed to the outside again from the middle (by the vibratory motion and by the centrifugal forces acting on the turning disk at the same time) and ultimately conveyed through the gap between the disk and will again upward into the container space. A dynamic equilibrium is established which prevents more and more grinding material from traveling underneath the disk and caking there into a compact solid, as is the case in Davidson.

Even if one of ordinary skill in the art ascertained the defect in Davidson, it is submitted he/she would first continue to try to prevent the material from traveling to under the disk at all. One of ordinary skill in the art based on his technical knowledge alone would not arrive at the idea underlying the present invention, specifically not to prevent the penetration of grinding material through the slot into the area underneath the disk, but instead to attain conveyance of the material again from underneath the disk through the slot into the container area above the disk. One of ordinary skill in the art could not foresee that this return conveyance of the abrasive from the area underneath the disk into the area above the disk is achieved by at least the bottom of the disk being made elastic.

Since the Examiner has not demonstrated why one of ordinary skill in the art would have modified the teachings of Davidson and since the Davidson patent teaches away from the present invention, it is submitted the presently claimed invention is patentable over the presently claimed invention.

In view of the foregoing amendments and remarks, entry of this amendment and favorable reconsideration and allowance of all of the claims now in the application are requested.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli,



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TECHNOLOGY CENTER R3700

LUTZ
US Serial No. 09/701,338

VERSION WITH MARKINGS TO SHOW CHANGES

IN THE CLAIMS:

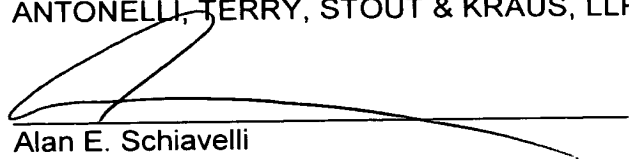
15. (Twice Amended) Device-Grinding Machine according to claim 1,
characterized in that a casing and/or the container is made from plastic.
16. (Twice Amended) Device-Grinding Machine according to claim 1,
characterized in that a drive motor for the rotary disk is placed beneath the rotary
disk.
17. (Twice Amended) Device-Grinding Machine according to claim 16,
characterized in that a drive for the disk has a gear between the drive motor and
disk.
18. (Twice Amended) Device-Grinding Machine according to claim 17,
characterized in that the gear is positioned below the disk.
19. (Twice Amended) Device-Grinding Machine according to claim 17,
characterized in that the drive is constructed as a geared motor with integrated gear.
20. (Twice Amended) Device-Grinding Machine according to claim 17,
characterized in that the drive motor is positioned below the container in a foot of the
casing.
21. (Twice Amended) Device-Grinding Machine according to claim 17,
characterized in that the drive motor is positioned laterally of the container.
22. (Twice Amended) Device-Grinding Machine according to claim 21,
characterized in that the top of the motor is substantially at the same level as the top
of the container.

23. (Twice Amended) ~~Device~~ Grinding Machine according to claim 1,
characterized in that a sealable outlet is provided below the disk in the base of the
container.

Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 321.39341X00),
and please credit any excess fees to such deposit account.

Respectfully submitted,

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